

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application.

In the Claims:

Please amend the remaining claims as follows:

1. (Currently Amended) A method for evaluating parameters of a drum design of a drum for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include a position of a first read head on said drum, said first read head sensing data recorded along a first azimuth;

(b) selecting a track of predetermined dimensions from a plurality of tracks;

~~simulating a the reading of one track of a plurality of tracks by calculating a the geometric area said first read head would cover as it scans over said track of predetermined dimensions;~~

(c) simulating a reading of said selected track by calculating a first read head coverage comprising a first geometric area of the selected track that would be covered by said first read head as said first read head scans over said selected track determining the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said one track;

(d) determining that the simulated read is successful when said percentage a ratio of said first read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected track is greater than a predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a said drum design when a number of said plurality of tracks for which the simulated read was determined to be successful is greater than a predetermined error rate threshold value.

2. (Currently Amended) The method of claim 1 wherein said parameters ~~includes~~ include a position of a second read head on said drum, and

wherein the step of simulating further comprises ~~the step of simulating the reading of said track by~~ calculating a the combined head coverage comprising a geometric area of the selected track that would be covered by said first read head and by said second read head as ~~they~~ each of the first read head and the second read head scan over said selected track, said first read head sensing data recorded along a first azimuth, and

said determining step comprises determining that the simulated read is successful when a ratio of said combined head coverage to said total geometric area is greater than a predetermined combined coverage threshold value; and

~~wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.~~

3. (Currently Amended) The method of claim 1 wherein said parameters includes positions of a plurality of read heads on said drum, and

wherein the step of simulating further comprises ~~the step of simulating the reading of said track by~~ calculating a the combined head coverage comprising a geometric area of the selected track that would be covered by said plurality of read heads as ~~they~~ each of the plurality of read heads scan over said selected track, and

said determining step comprises determining that the simulated read is successful when a ratio of said combined head coverage to said total geometric area is greater than a predetermined combined coverage threshold value; and

~~wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.~~

4. (Currently Amended) The method of claim 1 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying a ~~said~~ tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

5. (Currently Amended) The method of claim 4 wherein said the step of varying comprises the step of:

generating an ~~said~~ alternate tape speed values as values less than or equal to 1X speed of said tape device.

6. (Currently Amended) The method of claim 1 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying ~~said~~ gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

7. (Currently Amended) The method of claim 1 wherein said parameters include a nominal head offset spacing and wherein the method further comprises the steps of:

(g) varying a ~~said~~ head offset spacing from said nominal head offset spacing parameter value to generate an alternate head offset spacing value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate head offset spacing values.

8. (Currently Amended) A method for evaluating parameters of a drum design of a drum for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include a position of a first read head on said drum and a position of a second read head on said drum, said first read head sensing data recorded along a first azimuth and said second read head sensing data recorded along said first azimuth;

(b) selecting a track of predetermined dimensions from a plurality of tracks;

~~simulating the reading of one track of a plurality of tracks by calculating a first geometric area said first read head would cover as it scans over said track of predetermined dimensions and by calculating a second geometric area said second read head would cover as it scans over said track;~~

(c) simulating a reading of said selected track by calculating a first read head coverage comprising a first geometric area of the selected track that would be covered by said first read head as said first read head scans over said selected track and calculating a second read head coverage comprising a second geometric area of the selected track that would be covered by said second read head as said second read head scans over said selected track determining the amount of overlap of said first geometric area as a first percentage of the area defined by said predetermined dimensions of said track and the amount of overlap of said second geometric area as a second percentage of the area defined by said predetermined dimensions of said track;

(d) determining that the simulated read is successful when either ~~said first percentage~~ a first ratio of said first read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected is greater than a predetermined coverage threshold value₁ or ~~said second percentage~~ a second ratio of said second read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected is greater than said predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a said drum design when a number of said plurality of tracks for which the simulated read was

determined to be successful is greater than a predetermined error rate threshold value.

9. (Original) The method of claim 8 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying said tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

10. (Currently Amended) The method of claim 9 wherein said the step of varying comprises the step of:

generating an ~~said~~ alternate tape speed values as values less than or equal to 1X speed of said tape device.

11. (Currently Amended) The method of claim 8 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying a ~~said~~ gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

42 18. (Currently Amended) A drum evaluation simulator which evaluates parameters of a drum design for use in a helical scan tape device comprising:

a parameter receiving element for receiving said parameters wherein said parameters include a position of a first read head on said drum;

a read simulation element which simulates a reading of a track of predetermined dimension by calculating a first read head coverage comprising a first geometric area of the track that would be covered by said first read head as said first read head scans over said selected track ~~for simulating the reading of one track of a plurality of tracks by calculating the geometric area said first read head would cover as it scans over said track of predetermined dimensions;~~ and

a coverage determination element which determines a ratio of said first read head coverage to a total geometric track area of the track as defined by the predetermined dimensions of the track ~~for determining the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track.~~

43 19. (Currently Amended) The drum evaluation simulator of claim 4 18 wherein said parameters includes a position of a second read head on said drum, and

wherein the read simulation element simulates the reading of said track by calculating a the combined head coverage comprising a geometric area of the track that would be covered by said first read head and by said second read head as they each of the first read head and the second read head scan over the track, said first read head sensing data recorded along a first azimuth, and

wherein the coverage determination element determines a ratio of said combined head coverage to said total geometric track area ~~the amount of overlap~~

~~of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.~~

44 20. (Currently Amended)The drum evaluation simulator of claim 4 18 wherein said parameters includes positions of a plurality of read heads on said drum, and

wherein the read simulation element simulates the reading of said track by calculating a combined head coverage comprising a geometric area of the track that would be covered by said plurality of read heads as each of the plurality of read heads scan over said track~~calculating the combined geometric area that would be covered by said plurality of read heads as they scan over said track, and~~

wherein the coverage determination element determines a ratio of said combined head coverage to said total geometric track area~~the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.~~

45 21. (Currently Amended)The drum evaluation simulator of claim 4 18 wherein said parameters include a nominal tape speed and wherein:

the read simulation element varies said a tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

the coverage determination element determines a ratio of said first read head coverage to said total geometric track area~~the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track for said alternate tape speed value.~~

46 22. (Currently Amended)The drum evaluation simulator of claim 4 21 wherein said read simulation element generates said alternate tape speed values as values less than or equal to the nominal speed of said tape device.

~~17~~ 23. (Currently Amended) The drum evaluation simulator of claim ~~4~~ 18 wherein said parameters include a nominal gap width and wherein:

the read simulation element varies said gap width from said nominal gap width parameter value to generate an alternate gap width value; and

the coverage determination element determines the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track for said alternate gap width value.

~~18~~ 24. (Currently Amended) The drum evaluation simulator of claim ~~4~~ 18 wherein said parameters include a nominal head offset spacing and wherein:

the read simulation element varies said head offset spacing from said nominal head offset spacing parameter value to generate an alternate head offset spacing value; and

the coverage determination element determines the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track for said alternate head offset spacing value.